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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 775,789	02/10/2004	Robert K. Smither	0003-01475	9358

7500 05/03/2005

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EXAMINER

KAO, CHIH-CHENG G

ART UNIT PAPER NUMBER

2882

DATE MAILED: 05/03/2005

Please find below and or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10 775,789

Applicant(s)

SMITHER, ROBERT K

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Rev. (PTO-948)
3. ☐ Information Disclosure Statement(s) (PTO-1449 or PTO SB 08)
Paper No.'s: Mail Date: ____
4. ☐ Interview Summary (PTO-413)
Paper No.'s: Mail Date: ____
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: (fig. 3, #25), (fig. 6, #48), and (fig. 14, #164).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the following reference characters have been used to designate different parts: (#141 in figs. 5b and 16), (#55 in figs. 8a, 8b, and 9b), and (#156 in figs. 14, 15a, and 15b).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to because of the following informalities, which appear to be minor draft errors including drawing inconsistencies and grammatical issues.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (page 19, line 17, "57designated"; putting a space between "57" and "designated") and (page 24, line 19, "14a and 14b"; replacing "14a and 14b" with - -15a and 15b- -).

Appropriate correction is required.

Claim Objections

3. Claims 1, 4, 6, 8, 10, 13, 15, and 20 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (claim 1, line 3; deleting "and"), (claim 4, lines 1-2, "the step of arranging said crystals further comprises"; deleting "the step of arranging said crystals" and replacing "comprises" with - -comprising- -), (claim 1, line 5, "the resolution"; replacing "the" with - -a- -), (claim 4, line 2, "said cut"; replacing "said" with - -the- -), (claim 6, line 1; deleting the comma), (claim 6, line 2, "dislocations produce"; inserting - -that- - after "dislocations"), (claim 8, line 3, "the position and widths"; replacing "widths" with - -width- -), (claim 10, line 4, "the resolution"; replacing "the" with - -a- -), (claim 10, line 5, "detecting it", replacing "it" with - -the radiation- -), (claim 10, line 7, "said directed radiation", replacing

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“said” with - -the- -), (claim 13, line 1: deleting the comma), (claim 13, line 1: replace “where” with - -wherein- -), (claim 15, line 2: “the crystals”; replacing “the” with - -said plurality of crystals- -), and (claim 20, line 1: “said detectors in said detector arrays”; inserting - -comprising said plurality of detectors- - after “detector arrays” in claim 10, line 7).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 and 9-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Smither (US Patent 5869841).

5. Regarding claims 1 and 10, Smither discloses a method and device comprising supplying a plurality of sources of radiation (col. 5, lines 48-54), a means for locating said sources (col. 14, line 20), focusing said radiation onto detector arrays comprising one or more detectors (fig. 1, #19) by means of diffracting crystals (fig. 1, #18) having a width (col. 11, line 38) not exceeding a resolution (col. 4, lines 6-7), analyzing said focused radiation to collect data as to the type and location of the radiation (col. 13, lines 32-33), means for converting data to an image (col. 14, line 39), and producing an image using the data (col. 13, line 34).

6. Regarding claims 2 and 14, Smither further discloses the step of supplying said sources further comprising contacting a body with a radioisotope (col. 5, lines 43-54, and col. 13, lines 21-23).

7. Regarding claim 3, Smither further discloses wherein said image is produced by an array of detectors (fig. 1, #19).

8. Regarding claim 4, Smither further discloses cutting said crystals in thin slabs and bending the cut crystals to assume the shape of circular arcs (col. 13, lines 40-43).

9. Regarding claim 5, Smither further discloses the width as 1mm or less (col. 11, line 38).

10. Regarding claim 9, Smither further discloses placing at least one of said sources at precisely known locations (col. 13, lines 52-55).

11. Regarding claim 11, Smither further discloses means for locating sources as a plurality of scintillation devices (col. 14, lines 8-9).

12. Regarding claim 12, Smither further discloses diffracting crystals forming a plurality of lenses (col. 14, lines 10-11).

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13. Regarding claim 13, Smither further discloses the diffracting crystals (col. 6, lines 29-30) and sources (fig. 1, #15 and 16) being movable.

14. Regarding claim 15, Smither further discloses each lens comprising a plurality of crystals and wherein said plurality of crystals are oriented so as to diffract radiation of a predetermined energy to the same focal point (col. 14, lines 28-31).

15. Regarding claims 16 and 17, Smither further discloses crystals mounted in concentric rings onto a substrate (col. 14, lines 42-43) and bent (col. 12, line 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smither as applied to claims 1 and 10 above.

Smither discloses a method and device as recited above. Smither further discloses selecting crystals to have random imperfections and dislocations (fig. 5a) that produce an acceptance angle (i.e. rocking angle), which can be increased (col. 8, lines 9-15) from only a few seconds of arc (col. 8, lines 4-6).

However, Smither does not disclose an angle between 50 and 150 seconds of arc

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and device of Smither with the angle between 50 and 150 seconds of arc, since discovering a workable range involves only routine skill in the art. One would be motivated to make such a modification to compact the device (col. 8, lines 4-8) as implied from Smither.

17. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smither as applied to claims 1 and 10 above, and further in view of Yamashita et al. (WO 03/018131).

Smither discloses a method and device as recited above. Smither further discloses directing focused radiation to a plurality of detectors (fig. 1, #19).

However, Smither does not disclose a detector with a resolution of 1mm or less.

Yamashita et al. teaches a detector with a resolution of 1mm or less (page 13, lines 6-11).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and device of Smither with the detector of Yamashita et al., since one would be motivated to make such a modification to increase sensitivity (page 13, lines 6-11) as implied from Yamashita et al.

See US Patent Application Publication 2004 0174949 (paragraph 88) for a translation of page 13, lines 6-11, in Yamashita et al.

18. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smither as applied to claims 1 and 10 above, and further in view of Hura (US Patent 4246488).

Smither discloses a method and device as recited above.

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However, Smither does not disclose positioning a collimator medially with a narrow width aperture between a source and detector and adjusting the position and width of said aperture.

Hura teaches positioning a collimator (col. 4, line 12) medially with a narrow width aperture (fig. 5) between a source (col. 4, lines 7-9) and detector (col. 4, lines 41-44) and adjusting the position and width of said aperture (col. 4, lines 17-25).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and device of Smither with the collimator of Hura, since one would be motivated to make such a modification to minimize radiation exposure (col. 1, lines 31-33) as shown by Hura.

Conclusion

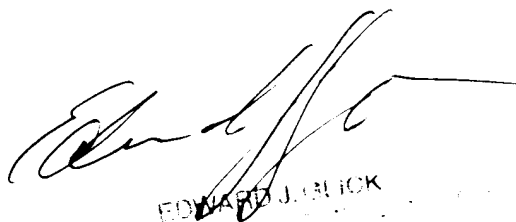
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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